

The effect of student loan size on outcomes of NZ bachelor's graduates

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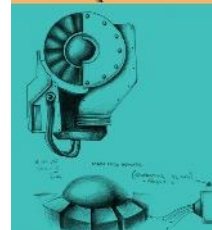
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Motivation

Effect of student loan debt

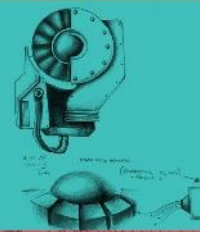
- \$15.9b of NZ student debt at June 2018: 719,187 people with student loans, average owed \$22,065
- How are students' futures and ability to utilise their education affected by debt?
- Fees-Free education policy for first-time learners in force from 1 January 2018
- How will resultant lower level of debt change behaviour of graduates?



Research questions

How does student debt at degree completion affect the choices and outcomes of NZ bachelor's graduates?

1. Destination choice: overseas, further study, NZ job, other
 - Do loans drive grads overseas to earn higher salaries that will enable faster repayment, or to avoid repayment entirely?
 - Do loans encourage grads to stay in NZ to avoid interest?
 - Do loans discourage investment in higher qualifications?



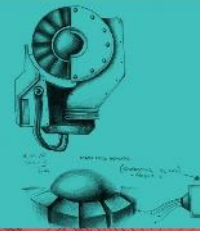
Research questions

2. Characteristics of first job:

- whether graduate migrates to job
- how soon after completion job starts
- location relative to tertiary study and school location
- sector (government, non-profit)
- length of job spell
- initial and subsequent earnings

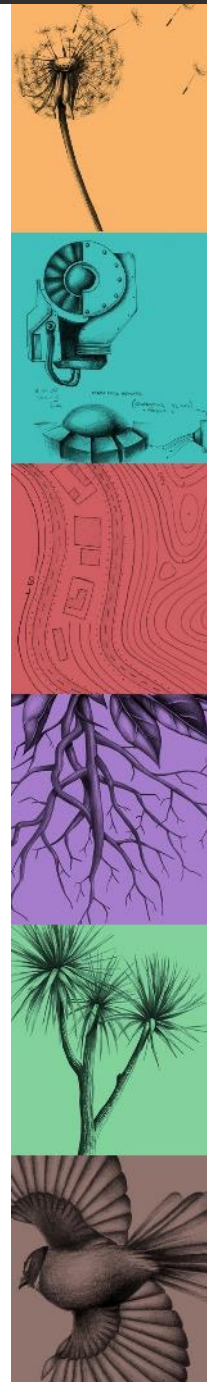
3. Family formation decisions:

- marriage
- parenthood



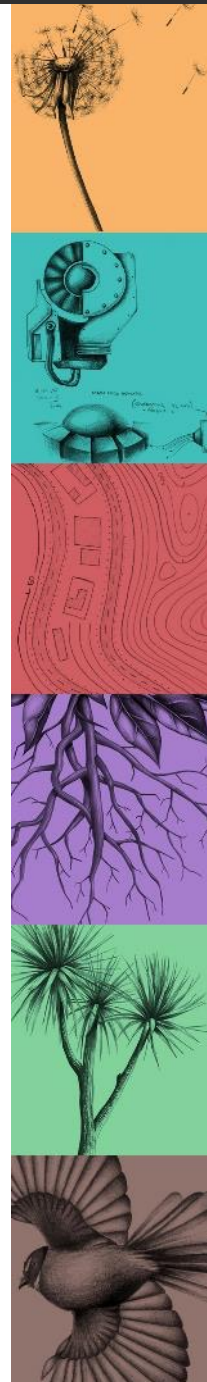
Background: NZ's student support system

- Financial support for tertiary students consists of loans (must be repaid) and allowances (not repaid)
- Loans available for compulsory course fees (all students), living costs and course-related costs (FT only)
- Repayment is income-contingent, 12c per dollar automatically deducted from income earned over a low threshold (\$19,448 in April 2018)
- Since 2006, no interest charged on loans for NZ-based borrowers, interest still charged for overseas-based borrowers



Background: NZ's student support system

- Student allowance eligibility based on parental income test for students under an age threshold
 - allowances help FT students cover living costs
 - threshold decreased from 25 years to 24 in 2009
- Value of allowance abates \$-for-\$ once personal income increases over a threshold
 - so actual allowance received depends on choices such as how much to work while studying
- Each dollar of allowance received reduces maximum borrowing for living expenses by \$1
 - so students with increased allowance eligibility semi-mechanically borrow less



SNZ Disclaimer

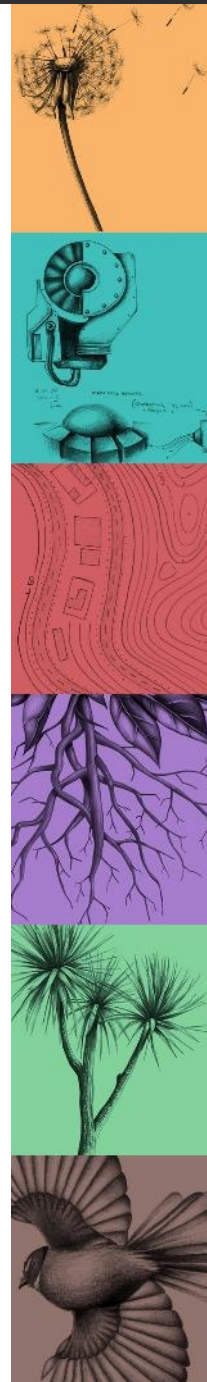
Access to the data presented was managed by Statistics New Zealand under strict micro-data access protocols and in accordance with the security and confidentiality provisions of the Statistics Act 1975.

Our findings are not Official Statistics. The opinions, findings, recommendations, and conclusions expressed are those of the authors, not Statistics NZ, Motu Economic and Public Policy Research, Stanford University, or Te Punaha Matatini.



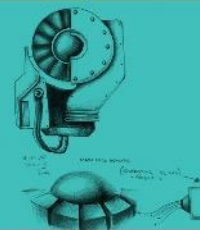
Data

- Integrated Data Infrastructure (IDI) held by Statistics New Zealand
- Unit record data for whole of NZ based on administrative and survey data, linked for individuals between different sources
- Main sources:
 - Tertiary education data from Ministry of Education (qualifications completed, characteristics of courses and study undertaken)
 - Employment and earnings data (monthly wage earnings) from Inland Revenue
 - Border crossings data from passport swipes
 - Marriages and births data from DIA



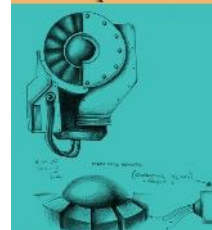
Data

- Main sample: Full-time, domestic students who completed a bachelor's degree in NZ aged 20-30 between Nov 2005 and June 2013
- “First destination”, within 36 months of completion:
 - Overseas: overseas for 300 or more days
 - Study: enrolled full time in tertiary study for two or more consecutive half-years
 - NZ job: took a job in NZ with a starting monthly salary of \$1000+, which lasted at least 3 months, and in which they hadn't worked in their last 6 months studying



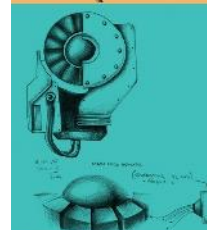
Empirical strategy

- Loan size at degree completion endogenous - affected by parental support, financial attitude, work while studying, career intentions etc
- Allowance receipt affects loan size, but also endogenous
- Step further back and instrument for loan size with allowance eligibility
- Instrument: fraction of 36 months leading up to completion in which allowance not parental income tested
- Controls include fixed effects for year/month of completion and flexible age control
- Identifying variation from 2009 change in age parental income testing ceases decreasing from 25 to 24

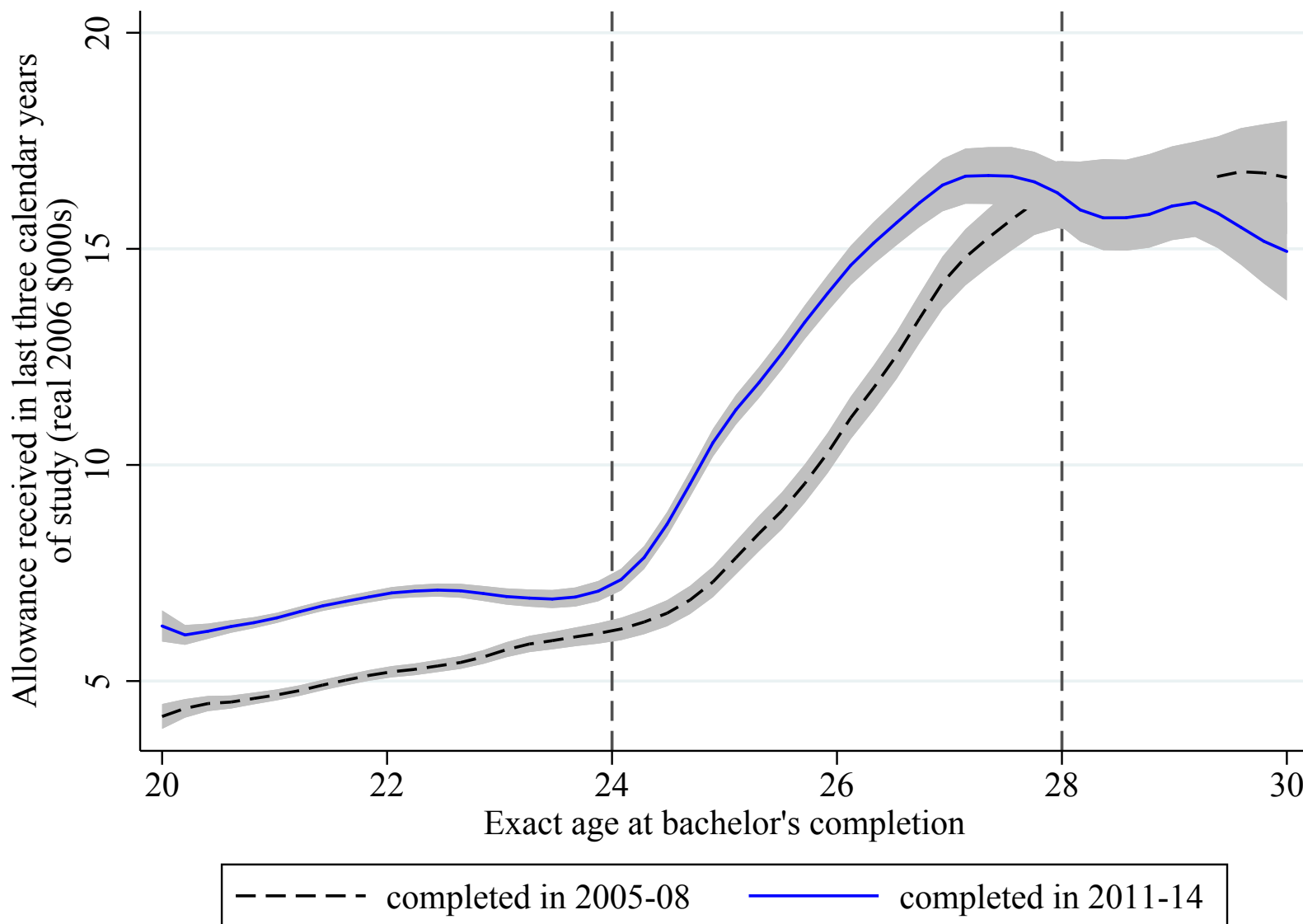


Descriptive statistics

Outcome	Mean	Std Dev.	Observations
Destination: Overseas	0.088		85,425
Destination: Study	0.221		85,425
Destination: NZ job	0.623		85,425
Migrated to job	0.322		64,722
Govt job	0.293		68,142
Non-profit job	0.058		68,142
Job start month	7.467	8.471	68,205
Job duration over 12 mon	0.531		68,205
Year 1 wages	25,594	28,856	85,425
Marriage within 6 years	0.204		69,513
Parenthood within 6 yrs	0.115		60,018



Instrument affects allowance received: Age at completion vs allowance received, pre and post



Effect of instrument on loan size

Dependent variable: Loan size at completion (real 2006 \$000s)

	(1)	(2)	(3)	(4)
Parental income test exempt	-13.396*** (1.287)	-12.614*** (1.203)	-13.052*** (1.075)	-11.777*** (1.184)
Female		-1.348*** (0.123)	-1.115*** (0.118)	-1.279*** (0.121)
NZ born		-0.526** (0.219)	-1.820*** (0.207)	-0.798*** (0.219)
Pass rate (0-1)		-29.909*** (0.828)	-15.601*** (4.505)	-26.217*** (0.825)
Year/month of study completion FE	Yes	Yes	Yes	Yes
Age at completion spline	Yes	Yes	Yes	Yes
Additional personal characteristics	No	Yes	Yes	Yes
Outcomes during study	No	No	Yes	No
RC of study & of school FE	No	No	No	Yes
<i>R-Squared</i>	0.145	0.211	0.298	0.242
<i>Observations</i>	85,404	85,335	85,335	85,335

Standard errors are robust. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Parental income test exempt: Fraction of last 36 months studying exempt from student allowance parental income test.



IV: Does loan size affect first destination?

*Dependent variable: destination given
in column header*

	Overseas		Study		NZ job	
Loan value at completion (\$0,000s)	-0.006 (0.014)	-0.006 (0.014)	-0.015 (0.016)	-0.007 (0.016)	0.036* (0.021)	0.025 (0.021)
Female		-0.012*** (0.003)		-0.008** (0.004)		0.031*** (0.004)
NZ born		-0.028*** (0.005)		-0.014** (0.006)		0.032*** (0.007)
Pass rate (0-1)		0.036 (0.076)		0.252*** (0.091)		-0.379*** (0.126)
Year/month of study completion FE	Yes	Yes	Yes	Yes	Yes	Yes
Age at completion spline	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	No	Yes	No	Yes	No	Yes
<i>R-Squared</i>	0.009	0.071	0.035	0.158	0.016	0.112
<i>Percentage of successes</i>	8.8	8.8	22.1	22.1	62.3	62.3
<i>Observations</i>	85,404	85,335	85,404	85,335	85,404	85,335
95% CI on coefficient on Loan value	-0.033 0.021	-0.034 0.021	-0.047 0.016	-0.038 0.024	-0.006 0.078	-0.017 0.067

Standard errors are robust. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Additional controls: ethnicity FE, school decile FE, field of study FE, time spent overseas during study, quadratic in years of tertiary study, quadratics in total EFTS passed and and total EFTS failed for degree, months worked and monthly earnings in 3 years before degree completion, whether married and whether a parent at completion and female interactions, studied at multiple institutions.



IV: Does loan size affect job or earnings?

Dependent variable:	Migrated to job		Govt job		Non-profit job	
Loan value at completion (\$0,000s)	0.068*** (0.025)	0.037 (0.025)	0.123*** (0.028)	0.108*** (0.024)	-0.004 (0.014)	0.006 (0.014)
Extra controls	Yes		Yes		Yes	
<i>Percentage of successes</i>	33.5	33.6	27.0	27.0	5.6	5.6
<i>Observations</i>	50,403	50,382	53,145	53,127	53,145	53,127

Dependent variable:	Job start month		Job duration over 12 mon		Year 1 wages (\$000s)	
Loan value at completion (\$0,000s)	0.017 (0.379)	0.187 (0.356)	0.063** (0.027)	0.031 (0.026)	8.760*** (1.124)	9.299*** (0.969)
Extra controls	Yes		Yes		Yes	
<i>Percentage of successes</i>			54.9	54.9		
<i>Observations</i>	53,184	53,169	53,184	53,169	125,310	125,238

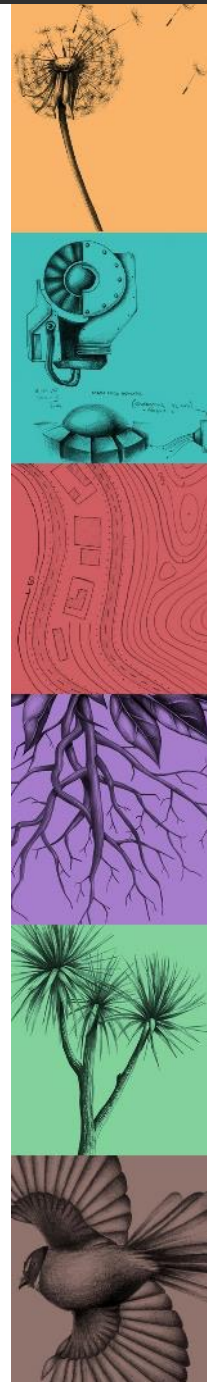
Each coefficient from a separate IV regression. Standard errors are robust. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Minimal and extra controls as previously. Sample for first five dep vars is students whose first destination was a NZ job.



IV: Does loan size affect family formation?

<i>Dependent variable:</i>	Marriage within 6 years		Parenthood within 6 years	
Loan value at completion (\$0,000s)	-0.012 (0.029)	-0.006 (0.025)	-0.050 (0.037)	-0.044 (0.035)
Female		0.040*** (0.004)		0.032*** (0.004)
NZ born		-0.018** (0.008)		-0.024*** (0.009)
Pass rate (0-1)		-0.084 (0.128)		0.001 (0.135)
Year/month of study completion FE	Yes	Yes	Yes	Yes
Age at completion spline	Yes	Yes	Yes	Yes
Additional controls	No	Yes	No	Yes
<i>R-Squared</i>	0.012	0.045	0.009	0.095
<i>Percentage of successes</i>	21.5	21.5	12.2	12.2
<i>Observations</i>	63,321	63,261	54,627	54,573
95% CI on coefficient on Loan value	-0.069 0.044	-0.055 0.044	-0.123 0.023	-0.112 0.024

Standard errors are robust. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Sample is students not already married at completion (cols 1-2) or not already parents at completion (cols 3-4) whose first destination was not overseas.



Conclusions

- No cause for alarm that student loan size drives graduates overseas or prevents higher study
- Some evidence that loan size matters for job strategy
 - graduates with larger loans may be more likely to migrate to a job and to secure a higher-paying job
 - suggests trade-off between earnings and lifestyle/family considerations
- Might expect graduates who benefit from Fees-Free policy to be more likely to take jobs where they want to live and to sacrifice some earnings for lifestyle factors

